

Opener

Calculate the volume of a regular octagon with sides measuring 6m, an apothem of 3.5m and height of 12m.

Nov 30-8:23 AM

Opener

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$$\begin{aligned}
 V &= A_b \times H_t \\
 &= \frac{P_a}{2} \times H_t \\
 &= \frac{(48)(3.5)}{2} \times 12 \\
 &= 84 \times 12 \\
 &= 1008 \text{ m}^3
 \end{aligned}$$

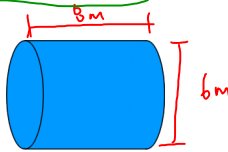
$P = 6 \times 8 = 48$

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Formula for the Volume of any shape

Review

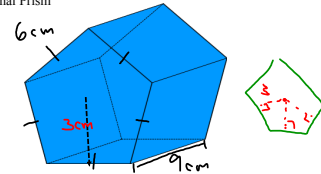
$$V = A_b \times H_t$$



$$\begin{aligned}
 V_{\text{cyl}} &= \pi r^2 \times H_t \\
 V_{\text{cyl}} &= \pi (3)^2 \times 6 \\
 V_{\text{cyl}} &= 3.14(9) \times 6 \\
 V_{\text{cyl}} &= 226.08 \text{ m}^3
 \end{aligned}$$

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Volume of Polygonal Prism



$$\begin{aligned}
 V &= A_b \times H_t \\
 V &= \frac{P_a}{2} \times H_t \\
 V &= \frac{30(3)}{2} \times 9 \text{ cm} \\
 V &= \frac{90}{2} \times 9 \\
 V &= 45 \times 9 \\
 V &= 405 \text{ cm}^3
 \end{aligned}$$

$P = 5 \times 6 = 30 \text{ cm}$
 $a = 3 \text{ cm}$
apothem

Formula for area of any polygon
 $P = \text{perimeter}$
 $a = \text{apothem}$

May 14-1:13 PM

Pentagonal Pyramid
Regular Pentagon
 $s = 6 \text{ cm}$
 $a = 0.25 \times 100 = 2.5 \text{ cm}$

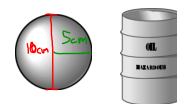
$$\begin{aligned}
 V_T &= \frac{A_b \times H_t}{3} \\
 &= \frac{37.5 \times 9}{3} \\
 &= \frac{337.5}{3} \\
 &= 112.5 \text{ cm}^3
 \end{aligned}$$

Cone - Circular Base reaching a point above the center

$$\begin{aligned}
 V &= \frac{A_b \times H_t}{3} \\
 V &= \frac{\pi r^2 \times H_t}{3} \\
 V &= \frac{\pi (6)^2 \times 12}{3} \\
 V &= \frac{3.14(36) \times 12}{3} \\
 V &= \frac{1351.68}{3} \\
 V &= 450.56 \text{ cm}^3
 \end{aligned}$$

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Volume of a Sphere



Solution #1

$$\begin{aligned}
 V &= \frac{4}{3} \pi r^3 \\
 V &= \frac{4}{3} \pi (10)^3 \\
 V &= \frac{4}{3} \pi (1000) \\
 V &= \frac{4000\pi}{3} \\
 V &= 1570.8 \\
 V_T &= 523.3 \text{ cm}^3
 \end{aligned}$$

Solution #2

$$\begin{aligned}
 V &= \frac{4}{3} \pi r^3 \\
 V &= \frac{4}{3} \pi (5)^3 \\
 V &= \frac{4}{3} \pi (125) \\
 V &= \frac{4(3.14)(125)}{3} \\
 V &= \frac{1570}{3} \\
 V &= 523.33 \text{ cm}^3
 \end{aligned}$$

May 17-1:03 PM

p. 427- 429 q. 4,5,7,10,14

Solve 4 together*

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